Bacteria in Water

Topic: Water

Objectives: Test for the existence of bacteria in water

Grade Level: 4 –12

Time: 20 - 30 minutes to gather samples, a second class period to discuss results

Vocabulary:
bacteria
microorganism
protozoa
virus
incubate

Materials: light color gelatin, cotton swabs, petri dishes with lids, permanent markers, latex gloves, writing pads, pens or pencils

Location: Lake Clara Meer, Clear Creek, classroom

Background: Many microorganisms, such as bacteria, protozoa and viruses, live in the water of streams, rivers, lakes and ponds. This activity tests for the presence of certain types of bacteria in the bodies of water that are found in Piedmont Park.

Advance Preparation: Prepare gelatin according to directions and pour two tablespoons into each petri dish. Cover and let cool overnight.

Procedure:

1. Keeping the lid on the petri dish, use a marker to divide the outside bottom of the dish into four equal sections. Number the sections 1-4.

2. Choose a site to take a sample of water. Dip a clean cotton swab into a sample of water and rub the swab over the gelatin in the section marked "one" of the petri dish. Replace the lid on the dish. Discard the used cotton swab. Record the site at which you took the water sample as site number one.

3. In sections two and three of the petri dish, repeat this procedure with two more water samples at two different sites. (You might use tap water for one sample.) Be sure to use a new cotton swab each time. Do not allow the water to run from one section to another. Record sites two and three. Section four of the petri dish will be the control.

4. In your classroom, set the covered petri dish upside down in a place where it will not be disturbed and allow it to incubate at room temperature.

5. At the next class period, observe the three areas for evidence of bacteria colony growth. These will appear as circular spots on the gelatin.

Questions to think about and discuss:

1. Which section of your petri dish shows the most evidence of bacterial growth? Which shows the least? What do you think accounts for these results?

2. Does the presence of bacteria in water mean that the water is not safe to drink? Why or why not? What do you think the presence of bacteria might tell you about Lake Clara Meer or Clear Creek?

3. Does the absence of bacteria in water mean that the water is safe to drink? Why or why not? What do you suppose the absence of bacteria might tell you about Lake Clara Meer or Clear Creek?

4. If you have a microscope in your classroom, examine various bacteria from your sample and see if you can identify them. Make a list of what you found in each section of your petri dish.